Drug Discovery in Post Genomic Era:

Structural Proteomics and *Chemoproteomics*

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The completion of the human genome project has commenced a new era in the researches of life science and pharmaceutical industry. With revolutionary advances in the researches of genomics, the number of drug targets is increasing rapidly and so are the hopes for new therapeutics for various diseases. These potential drug targets are now changing the way of drug discovery and demanding new technologies to accelerate the discovery process.

Structural proteomics based on protein structures is emerging as a promising technology for a faster drug discovery because it can facilitate an efficient designing of drug leads. When the 3-D structures of targets are determined, the chemical compounds can be screened against the active site of the protein by the advanced in silico high throughput screening technique. In addition, using NMR technology, the compounds that bind to the active site of the target protein are confirmed experimentally. Based on the structure of the binding compounds, the drug leads can be designed and optimized to regulate the protein function and thus give the desired pharmaceutical effect. Structural Chemoproteomics, a collection of the focused chemical libraries against to targeted protein folding families, provide us with a new strategy that accelerates the drug discovery process.

As a young, energetic biotech company, CrystalGenomics, Inc. is pursuing the integration of these Structural proteomics and Structural Chemoproteomics for a rapid-, novel drug discovery, in such a way that makes a set of unique, efficient platform technologies namely, *SPS*TM(Soluble Protein Solution), *SCP*TM(Structural ChemoProteomics) and *SDF*TM(Structural Drug Factory) Technologies. Technological advances in structure determination due to the emergence of synchrotron and MAD phasing have combined with the in silico technologies to expedite lead identification and optimization.